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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/121,152

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EXAMINER

KINNEY, ANNA L

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/121,152

Applicant(s)

OW ET AL.

Examiner

Anna Kinney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-28,30-38,40 and 42-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-28,30-38,40 and 42-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 16/19/98
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed February 16, 2006 have been fully considered but they are not persuasive.

In response to applicant's argument regarding the information disclosure statement (Remarks, pg. 7), the Examiner clarifies that in fact, all references other than JP 52-20563 were previously considered. JP 52-20563 has been considered, to the best of the Examiner's ability, given that the document is published in Japanese.

In response to applicant's argument regarding disclosure of alkali not added to the aqueous medium (Remarks, pgs. 7-8), the Examiner has reviewed the Examples indicated by the applicant. The examples compare enzyme deinking to conventional deinking performed with a combination of chemicals. Although alkali is not expressly added to the enzyme deinking examples, it is also not expressly excluded. The Examiner maintains that one of ordinary skill in the art would consider adding alkali to the enzyme and pulp suspension obvious when necessary to adjust pH to maintain a range optimal for a selected enzyme.

In response to applicant's arguments that those skilled in the art would recognize that high consistency pulpers, disclosed in the specification, encompass pulp consistencies from 6% to 35% (Remarks, pgs. 8-9), the Examiner notes that "12% or greater" is not limited to an upper level of 35%. As claimed, this range could be construed to include dry comminution, which is clearly not supported by the specification.

In response to applicant's arguments that the '299 reference states that alkaline cellulases are preferred (Remarks, pg. 10) and that the examples disclose use of NaOH (Remarks, pg. 11), preferred embodiments and examples do not limit the disclosure. The '299 reference states that commonly occurring cellulase can be used without any special restriction (pg. 2, last ¶), clearly considering non-alkaline cellulase as within the scope of the invention. The '299 reference also states that acid or alkali *can* be added (pg. 4, ¶ 3), clearly suggesting that alkali is not required. Finally, the '299 reference discloses that the invention is *not* restricted to the examples (pg. 4, ¶ 4). The Examiner further notes that the absence of alkali is only recited in claims 27 and 37.

In response to the applicant's argument that the Examiner has alleged that it would have been obvious to use cellulase over its entire range of activity (Remarks, pg. 10), the most recent Office Action to not make this argument. Fuentes provides a pH range for the rejection.

In response to the applicant's arguments regarding the JPO Decision (Remarks, p. 12), this argument was responded to in the previous Office Action. The Examiner's position has not changed.

In response to applicant's arguments against Fuentes individually (Remarks, pg. 13), Fuentes is not relied on to show deinking, but rather to show pulping recycled fibers at a pH between 3 and 7.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (Remarks, pg. 13 and 14), it must be recognized that any judgment on obviousness is in a sense necessarily a

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reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references (Remarks, pg. 13 and 14), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation was provided in the previous Office Action on page 11, 4th full ¶, and on page 13, 1st full ¶.

In response to applicant's argument that the art does not disclose a reasonable expectation of success for the intended purpose (Remarks, pg. 13 and 14), only a reasonable expectation of success, not absolute predictability, is necessary for obviousness (*In re Longi*, 759 F.2d 887, 897, 225 USPQ 645, 651-52 (Fed. Cir. 1985). While JP '299 does not explicitly discuss performing deinking in an acid or neutral pH, the disclosure is clearly open to doing so. The consistency, for which Hageman is applied, would have been in large part a function of the apparatus selected to perform the method, and does not introduce an unreasonable burden of experimentation. While

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Fuentes does not disclose that the method deinks pulp, Fuentes discloses that the method is used to treat recycled fibers (col. 2, lines 48-51), many of which contain inks by their nature. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that if the materials were the same as those claimed, and the steps were the same as those claimed, the results would have been the same. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to applicant's arguments against Hageman individually (Remarks, pg. 14), Hageman is not relied on to show deinking, but rather to show known wastepaper pulping consistencies.

Response to Amendment

The declaration under 37 CFR 1.132 filed February 24, 2006 is insufficient to overcome the rejection of claims based upon 21-28, 30-38, 40, and 42-50 as set forth in the last Office action because: showing is not commensurate in scope with the claims and does not compare claimed subject matter with the closest prior art.

The data provided in the declaration provides evidence for only a limited range (approximately 7.44 to 7.66) and does not provide evidence that would lead one of ordinary skill in the art to determine a trend for the rest of the claimed range. In addition, the data provided to represent JP '299 only supports a preferred embodiment. JP '299 states that commonly occurring cellulase can be used without any special

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restriction (pg. 2, last ¶), clearly considering non-alkaline cellulase as within the scope of the invention. JP '299 also states that acid or alkali *can* be added (pg. 4, ¶ 3), clearly suggesting that alkali is not required. Finally, JP '299 discloses that the invention is *not* restricted to the examples (pg. 4, ¶ 4). Therefore, JP '299 is not limited to alkaline deinking or to adding NaOH to the process.

The Examiner notes that the experiments representing JP '299 used a different cellulase than the experiments representing the claimed invention. The Examiner considers the brightness difference between the two sets of experiments may be due to a more effective cellulase being used to represent the claimed invention.

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 27, 28, 37, and 48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 27 and 37, the limitation "alkali is not added to the aqueous medium" is not disclosed in the specification. Although the specification indicates that no alkali is

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required, nothing in the specification specifically excludes the addition of alkaline reagents, particularly as a group.

In claim 28, the limitation "12% or greater" exceeds the range disclosed in the specification. The highest consistency disclosed is 15%.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-27, 30, 41, 45, and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Application 59-9299 (JP '299) in view of Fuentes et al (U.S. Patent 4,923,565).

With respect to claims 21 and 41, JP '299 discloses a method of de-inking waste printed paper, comprising a) pulping waste printed paper with an enzyme capable of dislodging ink particles from the waste printed paper (p. 4, ¶ 1-2) in an aqueous medium, wherein ink is dislodged from the waste printed paper by action of the enzyme (p. 3, ¶ 4); and b) removing the dislodged ink particles from the resulting pulp containing medium (p. 1, Detailed Description ¶ 1). JP '299 does not disclose expressly that the pulping occurs at a pH between 3 and 8. However, JP '299 does disclose that the enzyme used in the invention can be commonly occurring cellulase or alkaline cellulase (p. 2, ¶ 6), that acid and alkali can be added (e.g., for adjusting pH; p. 4, ¶ 3), and that the examples provided do not restrict the invention (p. 4, ¶ 4).

Fuentes et al discloses pulping recycled fibers with cellulase added at a pH between 3 and 7 (col. 3, lines 36-43), and in an example, 4.8 (col. 4, lines 38-39), which contains three specific points (3, 4.8, and 7) within the claimed range of between 3 and 8.

With respect to claims 22, 23, 25, 30, 49, and 50, JP '299 discloses that: dislodged ink particles are removed by flotation or washing (p. 1, Detailed Description ¶ 1); that the enzyme is a cellulase; that the temperature during pulping is 45°C, which contains one specific point within the claimed range of from room temperature up to about 60°C; and that the consistency is 6% (p. 4, ¶ 7) or 5% (pg. 8, lines 2-5), which contains 2 specific points (5, 6) within the claimed range of between 4 and 7%. JP '299 discloses that the wastepaper is disintegrated in a laboratory disintegrator (pg. 8, lines 2-5). JP '299 does not disclose expressly that the disintegration occurs in a conventional pulper. However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to use any known appropriate apparatus to perform the disintegration step.

The Examiner has considered room temperature to mean 20 to 25°C, as defined by the applicants during prosecution of the parent case (07/518,935; The Condensed Chemical Dictionary, p. 899).

With respect to claim 24, JP '299 discloses that the amount of enzyme used is above 0.002 weight-% cellulase relative to the raw material of old paper (p. 4, ¶ 1). Fuentes et al further discloses that the amount of enzyme used is 0.01 – 2% of the weight of the dry pulp (col. 3, lines 15-24), which includes two specific points within the

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claimed range of 0.005 to 5 percent-by-weight, based on the dry weight of the wastepaper.

With respect to claim 27, Fuentes et al discloses that alkali is not added to the aqueous medium (col. 4, line 30 to col. 5, line 10; col. 6 lines 38-64).

With respect to claim 48, JP '299 does not exclude the use of acid resistant cellulases (p. 2, last ¶). Furthermore, Fuentes et al discloses that the enzyme is an acid cellulase (col. 3, lines 36-43).

With respect to claims 45 and 47, at the time of the invention, it would have been obvious to a person of ordinary skill in the art that if a process was operated using the same materials, reagents, and conditions as those claimed, the method of degradation would be the same as in the claimed invention.

With respect to claim 26, JP '299 does not disclose expressly that the enzyme is derived from the microorganisms claimed.

Fuentes et al discloses that cellulase is derived from *Tirchoderma viridae* (col. 4, lines 47-52) or *Aspergillus niger* (col. 6, lines 40-43).

At the time of the invention, it would have been obvious to use the enzymes and conditions described by Fuentes et al in the de-inking method of JP '299 to obtain the invention as specified in claims 21-27, 30, 41, 45, and 47-50.

The motivation would have been to prevent denaturing the enzymes (col. 3, lines 36-43), and that among all the enzyme preparations containing cellulases and/or hemicellulases, those which possess a C₁ activity, a C_x activity and a xylanase activity are preferably selected (col. 2, lines 57-60).

Claims 28, 31-38, 40, 42-44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '299 and Fuentes et al as applied to claim 21 above, and further in view of Hageman et al (U.S. Patent 4,548,674).

With respect to claim 28, JP '299 and Fuentes et al do not disclose expressly that the wastepaper pulping consistency is about 12% or greater.

Hageman et al discloses pulping wastepaper at consistencies of 1-50%, 1-35%, and 1-15% (col. 3, lines 19-30), which contains three specific points (15, 35, 50) within the claimed range of about 12% or greater.

With respect to claim 32, JP '299 and Fuentes et al is applied as in the rejection to claim 24, above; Fuentes et al is applied as in the rejection to claim 26, above; and JP '299 is applied as in the rejection to claim 30, above.

With respect to claim 35, Fuentes et al is applied as in the rejection to claim 26, above.

With respect to claim 31, JP '299 discloses a method of recycling waste printed paper (p. 1, Detailed Description, ¶ 1). JP '299 and Fuentes et al are applied to the remaining limitations of the claim as discussed in the rejection of claim 21, above, with the exception of pulping consistency. Hageman et al is applied with respect to the pulping consistency as discussed in the rejection of claim 28, above.

With respect to claims 33, 37, and 46, JP '299 and Fuentes et al is applied as in the rejection to claims 24, 27, and 45, above.

With respect to claims 34, 36, and 40, JP '299 is applied as in the rejections to claims 22, 23, 25, and 30, above.

With respect to claim 38, Hageman et al is applied as in the rejection to claim 28, above.

With respect to claims 42-44, at the time of the invention, it would have been obvious to a person of ordinary skill in the art that if a process was operated using the same enzyme and conditions as those claimed, the results would be the same as in the claimed invention.

At the time of the invention, it would have been obvious to use the pulping consistency as described by Hageman et al for the pulping and de-inking process of JP '299 and Fuentes et al to obtain the invention as specified in claims 28, 31, 33-34, 36-38, 40, 42-44, and 46.

The motivation would have been that good results have been obtained in pulpers, and in a pulper, pulp consistencies of between 1 and 15% are generally used (col. 3, lines 25-30).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Kinney whose telephone number is (571) 272-8388. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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